CALIFORNIA DEPARTMENT OF JUSTICE
BUREAU OF FORENSIC SERVICES
PHYSICAL EVIDENCE BULLETIN

TOOLMARK EVIDENCE COLLECTION

INTRODUCTION: A toolmark is any impression, scratch, gouge, cut, or abrasion made when a tool is brought into contact with another object. Toolmarks can take the form of a negative impression (stamping type) or abrasion (friction type) mark. Some marks are combination of both features. Laboratory examinations and comparisons of tools from a suspect, with toolmarks recovered from a crime scene, can often provide conclusive evidence to link a suspect to a specific crime.

SPECIAL PRECAUTIONS: Doors, windows, or other openings with hinged or sliding doors should not be opened, closed, or handled in any way that might compromise latent fingerprints. These usually occur near the points of entry or exit. Investigators should also take special note of any broken, forced, or cut locks, latches, or bolts in the immediate area. The tool should NEVER be fitted into the impression to see if it could have made the mark.

PHOTOGRAPHY: Two types of photographs are needed for courtroom identification.

(1) An over-all photo depicting the entire object which bears the toolmark.

(2) A close-up photo showing the detail of the toolmark. This close-up is for identification and orientation only and cannot be used for actual comparisons.

Photographs should show the physical location and arrangement of the door, window, etc. bearing the mark. These can reveal the direction of tool use and whether the tool is physically capable of making the mark. A scale/ruler should also be included in these photographs.

RECORDING TOOLMARK EVIDENCE: Toolmarks should be completely documented before removal or casting. Notes and sketches must accurately reflect the position of all toolmarks to a fixed reference point, and the height from the floor or the ground.

TRACE EVIDENCE: Toolmarks should be examined carefully for any trace evidence. First type of trace evidence to be considered is latent prints. Proper processing of latent prints is preceded by a careful examination for any loosely adhering particles of evidence. These may be either removed and separately packaged or avoided in the application of fingerprint powder (applying and removing powders can destroy trace evidence). Toolmark evidence should be packaged so as not to subject it to damage or loss of trace evidence.

TRACE EVIDENCE REMOVED FROM THE OBJECT SURFACE:
On painted surfaces bearing a toolmark, sample scrapings of the paint should also be submitted to the

laboratory. Paint may not be readily seen adhering to the tool; however, microscopic examination of the tool may reveal minute particles having evidentiary value. (See PEB 5/84 for procedure on paint recovery). When a toolmark is on a surface that cannot be removed entirely, such as a large heavy metal object, samples of the metal should be obtained and submitted as reference standards. Particles of metal may adhere to the tool in addition to Paint and both may be analyzed and compared.

Flakes of adhearing paint might be lost from the tool while in transit to the laboratory; therefore, a plastic bag should be taped over the end of an object to prevent loss or contamination of trace evidence.

REMOVAL AND MARKING OF EVIDENCE:

Any items removed as evidence should be clearly marked with case number, initials, and date of removal. The evidence should also be marked to show the inside or outside; top, or bottom; and the surface area bearing the toolmark. Use a felt tip pen or include a separate drawing with the submitted evidence. Many objects bearing toolmarks that are detached on forced entry, can be submitted directly.

This includes segments of window or door molding, window or door sill, latches, bolts, locks or doorknobs. Where doorknobs are twisted, note whether anything obstructs access to the knob from either side (posts, door set-back).

If the mark appears on items too large to be sent to the laboratory, it may be possible to remove the area containing the mark. If the object bearing the toolmark is removed, a sufficiently large piece of the surrounding surface area should be included to prevent damage to the mark through bending, splintering or breaking.

Any small removable item such as a doorknob, latch plate, or lock, should be marked by the investigator showing the top and front of the item as it was positioned before removal.

CASTS: If an actual item cannot be submitted for toolmark examination a cast can be made. A suitable casting material is MIKROSIL (Distributed by Kinderprint Co. P.O. Box 16, Martinez, CA. 94553). This is a two-part substance, which reproduces the fine detail needed for microscopic comparison. Two speeds of hardener are supplied in the casting kit. The SLOW Hardener is suitable for normal casting. The FAST hardener is used for casting in very cold climates. Complete mixing of the casting material and hardener is essential. A properly mixed portion will be workable for about 1-2 minutes and the cast can be removed in about 10 minutes. A hardened mikrosil cast cannot be permanently marked with a pen; therefore, the cast must be placed in a suitable container which can be appropriately marked with item #, location, date and name of person making the cast.

PACKING OF TOOLMARK EVIDENCE: Any object bearing a toolmark should be handled and packed in such a manner as to prevent any further contact with objects which could alter and therefore compromise the original markings. For further information contact your local Criminalistics Laboratory.